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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/003,636	11/02/2001	Gagan Lal Choudhury	2001-0163A	8362

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EXAMINER	
HAILE, FEBEN	
ART UNIT	**PAPER NUMBER**
2616	

DATE MAILED: 07/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/003,636	CHOUDHURY ET AL.	
	Examiner	Art Unit	
	Feben M. Haile	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 April 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *9,11-20 and 25-31* is/are pending in the application.

4a) Of the above claim(s) *1-8, 10, 21-24* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *9,11-20 and 25-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. In view of applicant's amendment filed April 12, 2006, the status of the application is still pending with respect to claims 1-31.

2. The amendment filed is sufficient to overcome the rejection of claims 11-12 and 17 and 28 under 35 U.S.C. 112 based upon the Applicants argument that the rejection fails to provide any evidence that the claims, read in light of the specification, do not reasonably apprise those skilled in the art of the use and scope of the invention. Thus the rejection has been withdrawn. However in light of the new interpretation of the claims, a new rejection has been formulated under 35 U.S.C. 103, which can be found below.

3. The amendment filed is insufficient to overcome the rejection of claims 9, 11-16, 18-20, 25-27, and 29-31 as set forth in the last Office action because: **(1)** the material added to some of the claims fail to further clarify a distinction between the Applicants invention and the cited references, thus the subject matter is not patentable over the prior art of record and **(2)** the Applicants arguments for Prima Facie criteria, missing claim limitations, and no motivation or suggestion to modify the applied references are not persuasive. Thus the previous rejection can be found below along with the Examiners response to the Applicants arguments.

Claim Objections

4. Claims 11-12, 16, 19, and 25-31 objected to because of the following informalities: they include acronyms without the proper identification.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 9, 19, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hebsgaard et al. (US 2004/0218589), hereinafter referred to as Hebsgaard in view of Beser (US 6807193), hereinafter referred to as Beser in view of Giacopelli et al. (US 2002/0101826), hereinafter referred to as Giacopelli.

Regarding claim 9, Hebsgaard discloses the limitations: generating a map interval defining channel transmissions for a period of time **(page 1 paragraph 006; MAP information covers time periods for a channel)**; flexibly partitioning the map interval into a request interval, a management interval, a data+signaling interval, and a voice interval **(page 1 paragraph 0006; MAP information consists of a request region, maintenance region and data region, it is obvious that the data region could transmit any type of media, e.g. audio, video, and/or data)**.

Hebsgaard fails to teach the limitation: so as to optimize use of the channel bandwidth.

Beser discloses generating a map indicating the use of channels and time slots for bandwidth allocation **(figure 5 and column 3 lines 48-50)**.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the method of allocating bandwidth taught by Beser into the Hebsgaard's map. The motivation for creating such a modification being, to provide an efficient method of transmitting data traffic between a modem and termination system.

Hebsgaard, Beser, or their combination fails to teach the limitation: including allowing a soft partition among voice and data in which data is allowed to utilize unused bandwidth in voice interval with lower priority.

Giacopelli discloses sharing bandwidth between signaling, voice, and data traffic, where voice has priority over data **(page 1 paragraph 0007)**.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combination of Hebsgaard and Beser by incorporating the method of bandwidth sharing taught by Giacopelli. The motivation for creating such a modification being, to increase the efficiency of network traffic control though the use of bandwidth management techniques.

Regarding claim 19, Hebsgaard discloses the limitations: generating a map interval defining channel transmissions for a period of time **(page 1 paragraph 006; MAP information covers time periods for a channel)**; flexibly partitioning the map

interval into a request interval, a management interval, a data+signaling interval, and a voice interval **(page 1 paragraph 0006; MAP information consists of a request region, maintenance region and data region, it is obvious that the data region could transmit any type of media, e.g. audio, video, and/or data)**.

Hebsgaard fails to teach the limitation: further including assigning a higher priority to signaling packets than data packets within the data+signaling interval.

Giacopelli discloses in a network where bandwidth is shared, voice packets have priority over data packets and signaling packets have priority over voice packets **(page 1 paragraph 0007)**.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Hebsgaard by incorporating the method of bandwidth sharing taught by Giacopelli. The motivation for creating such a modification being, to increase the efficiency of network traffic control though the use of bandwidth management techniques.

Hedsgaard, Giacopelli, or their combination fails to teach the limitation: further including assigning unique SID's to each signaling and data stream.

Beser teaches providing service flow ids for particular mappings between cable modems and cable modem termination systems **(column 2 lines 55-57)**.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combination of Hebsgaard and Giacopelli by incorporating the method of allocating bandwidth taught by Beser. The motivation for

creating such a modification being, to provide an efficient method of transmitting data traffic between a modem and termination system.

Regarding claim 30, Hebsgaard discloses the limitations: transmitting map intervals from a cable modem termination system on a downstream channel to a plurality of cable modems **(page 1 paragraph 0006; the MAP information is transmitted on a downstream channel by a CMTS)**, wherein the map intervals define upstream traffic for the plurality of cable modems for a period of time in the future **(page 1 paragraph 0006; the MAP information covers an upstream channel)**; and flexibly partitioning the map intervals into a plurality of sub intervals **(page 1 paragraph 0006; MAP information consists of a request region, maintenance region and data region, it is obvious that the data region could transmit any type of media, e.g. audio, video, and/or data)**.

Hebsgaard fails to teach the limitation: based upon bandwidth requirements of the sub intervals.

Beser discloses generating a map indicating the use of channels and time slots for bandwidth allocation **(figure 5 and column 3 lines 48-50)**.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the method of allocating bandwidth taught by Beser into the Hebsgaard's map. The motivation for creating such a modification being, to provide an efficient method of transmitting data traffic between a modem and termination system.

Hebsgaard, Beser, or their combination fails to teach the limitation: and further including assigning a higher priority to signaling packets than data packets.

Giacopelli discloses in a network where bandwidth is shared, voice packets have priority over data packets and signaling packets have priority over voice packets **(page 1 paragraph 0007)**.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combination of Hebsgaard and Beser by incorporating the method of bandwidth sharing taught by Giacopelli. The motivation for creating such a modification being, to increase the efficiency of network traffic control though the use of bandwidth management techniques.

6. Claims 11-12 and 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hebsgaard et al. (US 2004/0218589), hereinafter referred to as Hebsgaard in view of Beser (US 6807193), hereinafter referred to as Beser in view of Rabenko et al. (US 6763032), hereinafter referred to as Rabenko.

Regarding claim 11, Hebsgaard discloses the limitations: generating a map interval defining channel transmissions for a period of time **(page 1 paragraph 006; MAP information covers time periods for a channel)**; flexibly partitioning the map interval into a request interval, a management interval, a data+signaling interval, and a voice interval **(page 1 paragraph 0006; MAP information consists of a request region, maintenance region and data region, it is obvious that the data region could transmit any type of media, e.g. audio, video, and/or data)**.

Hebsgaard fails to teach the limitation: so as to optimize use of the channel bandwidth.

Beser discloses generating a map indicating the use of channels and time slots for bandwidth allocation **(figure 5 and column 3 lines 48-50)**.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the method of allocating bandwidth taught by Beser into the Hebsgaard's map. The motivation for creating such a modification being, to provide an efficient method of transmitting data traffic between a modem and termination system.

Beser fails to teach the limitations: further including placing a request interval, management interval and voice UGs adjacent to each other at one end of the map interval so that a single contiguous interval is available for data+signaling.

Hebsgaard discloses the data region is made up of short and long data grants **(page 1 paragraph 0006)**. Rabenko discloses a map interval, where a request and maintenance portion are adjacent to each other forming a contiguous interval and a data interval follows **(figure 9)**. It is obvious to one of ordinary skill in the art that the data interval of Rabenko could be made up of the grants of Hebsgaard with voice using the long grants and data using the short grants and the voice could come before the data. Thus the voice is adjacent to the contiguous interval of the request and maintenance portions and the data comes after.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combination of Hebsgaard and Beser by

incorporating the MAP design of Rabenko. The motivation for such a modification being to synchronize voice packet sampling with cable modem system grant processing when transmitting packet based voice using cable modems.

Regarding claim 12, Hebsgaard discloses the limitations: generating a map interval defining channel transmissions for a period of time **(page 1 paragraph 006; MAP information covers time periods for a channel)**; flexibly partitioning the map interval into a request interval, a management interval, a data+signaling interval, and a voice interval **(page 1 paragraph 0006; MAP information consists of a request region, maintenance region and data region, it is obvious that the data region could transmit any type of media, e.g. audio, video, and/or data)**.

Hebsgaard fails to teach the limitation: so as to optimize use of the channel bandwidth.

Beser discloses generating a map indicating the use of channels and time slots for bandwidth allocation **(figure 5 and column 3 lines 48-50)**.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the method of allocating bandwidth taught by Beser into the Hebsgaard's map. The motivation for creating such a modification being, to provide an efficient method of transmitting data traffic between a modem and termination system.

Beser fails to teach the limitations: further including placing a request+management interval and voice UGs on opposite ends of the map interval so that a contiguous interval is available for data+signaling.

Hebsgaard discloses the data region is made up of short and long data grants **(page 1 paragraph 0006)**. Rabenko discloses a map interval, where a request and maintenance portion are adjacent to each other forming a contiguous interval and a data interval follows **(figure 9)**. It is obvious to one of ordinary skill in the art that the data interval of Rabenko could be made up of the grants of Hebsgaard with voice using the long grants and data using the short grants and the data could come before the voice. Thus the data is adjacent to the contiguous interval of the request and maintenance portions and the voice comes after.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combination of Hebsgaard and Beser by incorporating the MAP design of Rabenko. The motivation for such a modification being to synchronize voice packet sampling with cable modem system grant processing when transmitting packet based voice using cable modems.

Regarding claim 25, Hebsgaard discloses the limitations: transmitting map intervals from a cable modem termination system on a downstream channel to a plurality of cable modems **(page 1 paragraph 0006; the MAP information is transmitted on a downstream channel by a CMTS)**, wherein the map intervals define upstream traffic for the plurality of cable modems for a period of time in the future **(page 1 paragraph 0006; the MAP information covers an upstream channel)**; and flexibly partitioning the map intervals into a plurality of sub intervals; further including partitioning the map intervals into al least a request interval, management interval, a data+signaling interval, and a voice interval **(page 1 paragraph 0006; MAP**

information consists of a request region, maintenance region and data region, it is obvious that the data region could transmit any type of media, e.g. audio, video, and/or data); placing unsolicited grants (UGs) contiguously within the voice interval **(page 1 paragraph 0006; the data region of the MAP information can be unsolicited grants);** further including moving UGs to maintain a contiguous UG interval after removal of a respective UG associated with a terminated voice call **(it is further obvious to one of ordinary skill in the art that once a voice call is deactivated and silence is detected, more media, e.g. video, data, and/or audio, could be transmitted in its place)**.

Hebsgaard fails to teach the limitation: based upon bandwidth requirements of the sub intervals.

Beser discloses generating a map indicating the use of channels and time slots for bandwidth allocation **(figure 5 and column 3 lines 48-50)**.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the method of allocating bandwidth taught by Beser into the Hebsgaard's map. The motivation for creating such a modification being, to provide an efficient method of transmitting data traffic between a modem and termination system.

Hebsgaard, Beser, or their combination fails to teach the limitation: further including placing the management interval and the request interval together to form a contiguous interval.

Rabenko discloses a MAP that includes adjacent request, maintenance, and data intervals **(figure 14 units 104, 105, and 106)**.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combination of Hebsgaard and Beser by incorporating the MAP design of Rabenko. The motivation for such a modification being to synchronize voice packet sampling with cable modem system grant processing when transmitting packet based voice using cable modems.

Regarding claim 26, Hebsgaard discloses the limitations: transmitting map intervals from a cable modem termination system on a downstream channel to a plurality of cable modems **(page 1 paragraph 0006; the MAP information is transmitted on a downstream channel by a CMTS)**, wherein the map intervals define upstream traffic for the plurality of cable modems for a period of time in the future **(page 1 paragraph 0006; the MAP information covers an upstream channel)**; and flexibly partitioning the map intervals into a plurality of sub intervals; further including partitioning the map intervals into al least a request interval, management interval, a data+signaling interval, and a voice interval **(page 1 paragraph 0006; MAP information consists of a request region, maintenance region and data region, it is obvious that the data region could transmit any type of media, e.g. audio, video, and/or data)**; placing unsolicited grants (UGs) contiguously within the voice interval **(page 1 paragraph 0006; the data region of the MAP information can be unsolicited grants)**; and further including filling a hole in the voice interval due to a terminated voice call with one or more packets associated with management, request,

data, and signaling **(it is further obvious to one of ordinary skill in the art that once a voice call is deactivated and silence is detected, more media, e.g. video, data, and/or audio, could be transmitted in its place)**.

Hebsgaard fails to teach the limitation: based upon bandwidth requirements of the sub intervals.

Beser discloses generating a map indicating the use of channels and time slots for bandwidth allocation **(figure 5 and column 3 lines 48-50)**.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the method of allocating bandwidth taught by Beser into the Hebsgaard's map. The motivation for creating such a modification being, to provide an efficient method of transmitting data traffic between a modem and termination system.

Hebsgaard, Beser, or their combination fails to teach the limitations: further including placing the management interval and the request interval together to form a contiguous interval.

Rabenko discloses a MAP that includes adjacent request, maintenance, and data intervals **(figure 14 units 104, 105, and 106)**.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combination of Hebsgaard and Beser by incorporating the MAP design of Rabenko. The motivation for such a modification being to synchronize voice packet sampling with cable modem system grant processing when transmitting packet based voice using cable modems.

7. Claims 13-15 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hebsgaard et al. (US 2004/0218589), hereinafter referred to as Hebsgaard in view of Beser (US 6807193), hereinafter referred to as Beser.

Regarding claim 13, Hebsgaard discloses the limitations: generating a map interval defining channel transmissions for a period of time **(page 1 paragraph 006; MAP information covers time periods for a channel)**; flexibly partitioning the map interval into a request interval, a management interval, a data+signaling interval, and a voice interval **(page 1 paragraph 0006; MAP information consists of a request region, maintenance region and data region, it is obvious that the data region could transmit any type of media, e.g. audio, video, and/or data)**; further including placing voice unsolicited grants (UGs) contiguously within the voice interval **(page 1 paragraph 0006; the data region of the MAP information can be unsolicited grants)**; further removing a UG from the contiguous UGs **(it is obvious to one of ordinary skill in the art that every time a voice call is activated a UG is used)**.

Hebsgaard fails to teach the limitation: so as to optimize use of the channel bandwidth.

Beser discloses generating a map indicating the use of channels and time slots for bandwidth allocation **(figure 5 and column 3 lines 48-50)**.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the method of allocating bandwidth taught by Beser into the Hebsgaard's map. The motivation for creating such a modification being, to

provide an efficient method of transmitting data traffic between a modem and termination system.

Regarding claim 14, Hebsgaard discloses the limitations: generating a map interval defining channel transmissions for a period of time **(page 1 paragraph 006; MAP information covers time periods for a channel)**; flexibly partitioning the map interval into a request interval, a management interval, a data+signaling interval, and a voice interval **(page 1 paragraph 0006; MAP information consists of a request region, maintenance region and data region, it is obvious that the data region could transmit any type of media, e.g. audio, video, and/or data)**; further including placing voice unsolicited grants (UGs) contiguously within the voice interval **(page 1 paragraph 0006; the data region of the MAP information can be unsolicited grants)**; further removing a UG from the contiguous UGs **(it is obvious to one of ordinary skill in the art that every time a voice call is activated a UG is used)**; and further including rearranging the UGs so as to close a hole that has been created due to the departure of a voice call and its associated UG **(it is further obvious to one of ordinary skill in the art that once a voice call is deactivated and silence is detected, more media, e.g. video, data, and/or audio, could be transmitted in its place)**.

Hebsgaard fails to teach the limitation: so as to optimize use of the channel bandwidth.

Beser discloses generating a map indicating the use of channels and time slots for bandwidth allocation **(figure 5 and column 3 lines 48-50)**.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the method of allocating bandwidth taught by Beser into the Hebsgaard's map. The motivation for creating such a modification being, to provide an efficient method of transmitting data traffic between a modem and termination system.

Regarding claim 15, Hebsgaard discloses the limitations: generating a map interval defining channel transmissions for a period of time **(page 1 paragraph 006; MAP information covers time periods for a channel)**; flexibly partitioning the map interval into a request interval, a management interval, a data+signaling interval, and a voice interval **(page 1 paragraph 0006; MAP information consists of a request region, maintenance region and data region, it is obvious that the data region could transmit any type of media, e.g. audio, video, and/or data)**; further including placing voice unsolicited grants (UGs) contiguously within the voice interval **(page 1 paragraph 0006; the data region of the MAP information can be unsolicited grants);** further removing a UG from the contiguous UGs **(it is obvious to one of ordinary skill in the art that every time a voice call is activated a UG is used)**; further including rearranging the UGs so as to close a hole that has been created due to the departure of a voice call and its associated UG; and further including filling the hole with data packets associated with one or more of request, management, signaling and data packets or the UG from a future voice call **(it is further obvious to one of ordinary skill in the art that once a voice call is deactivated and silence is**

detected, more media, e.g. video, data, and/or audio, could be transmitted in its place).

Hebsgaard fails to teach the limitation: so as to optimize use of the channel bandwidth.

Beser discloses generating a map indicating the use of channels and time slots for bandwidth allocation **(figure 5 and column 3 lines 48-50)**.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the method of allocating bandwidth taught by Beser into the Hebsgaard's map. The motivation for creating such a modification being, to provide an efficient method of transmitting data traffic between a modem and termination system.

Regarding claim 29, Hebsgaard discloses the limitations: transmitting map intervals from a cable modem termination system on a downstream channel to a plurality of cable modems **(page 1 paragraph 0006; the MAP information is transmitted on a downstream channel by a CMTS)**, wherein the map intervals define upstream traffic for the plurality of cable modems for a period of time in the future **(page 1 paragraph 0006; the MAP information covers an upstream channel)**; and flexibly partitioning the map intervals into a plurality of sub intervals **(page 1 paragraph 0006; MAP information consists of a request region, maintenance region and data region, it is obvious that the data region could transmit any type of media, e.g. audio, video, and/or data)**.

Hebsgaard fails to teach the limitations: based upon bandwidth requirements of the sub intervals; and further including assigning separate SIDs to data and signaling streams.

Beser teaches generating a map indicating the use of channels and time slots for bandwidth allocation **(figure 5 and column 3 lines 48-50)** and providing service flow ids for particular mappings between cable modems and cable modem termination systems **(column 2 lines 55-57)**.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the method of allocating bandwidth taught by Beser into the Hebsgaard's map. The motivation for creating such a modification being, to provide an efficient method of transmitting data traffic between a modem and termination system.

8. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hebsgaard et al. (US 2004/0218589), hereinafter referred to as Hebsgaard in view of Moore et al. (US 6807195), hereinafter referred to as Moore.

Regarding claim 16, Hebsgaard discloses the limitations: generating a map interval defining channel transmissions for a period of time **(page 1 paragraph 006; MAP information covers time periods for a channel)**; flexibly partitioning the map interval into a request interval, a management interval, a data+signaling interval, and a voice interval **(page 1 paragraph 0006; MAP information consists of a request**

region, maintenance region and data region, it is obvious that the data region could transmit any type of media, e.g. audio, video, and/or data).

Hebsgaard fails to teach the limitation: further including placing UGs within the voice interval until a predetermined fraction of total bandwidth available for voice, data, and signaling is reach.

Moore discloses that in accordance with the current DOCSIS standard, UGs are used to guarantee sufficient bandwidth to transmit voice **(column 3 lines 63-column 4 line 1; it would have been obvious to one having ordinary skill in the art that sufficient bandwidth to transmit voice could be a maximum bandwidth)**.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combination ob Hebsgaard and Beser by incorporating the current DOCSIS standard taught by Moore. The motivation for such a modification being an improved system of transmitting packet voice traffic that minimizes latency and jitter.

9. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hebsgaard et al. (US 2004/0218589), hereinafter referred to as Hebsgaard in view of Rabenko et al. (US 6,763,032), hereinafter referred to as Rabenko.

Regarding claims 17, Hebsgaard discloses the limitations: generating a map interval defining channel transmissions for a period of time **(page 1 paragraph 006; MAP information covers time periods for a channel)**; flexibly partitioning the map interval into a request interval, a management interval, a data+signaling interval, and a

voice interval **(page 1 paragraph 0006; MAP information consists of a request region, maintenance region and data region, it is obvious that the data region could transmit any type of media, e.g. audio, video, and/or data)**.

Hebsgaard fails to teach the limitation: further including maximizing contiguousness of the data+signaling interval.

Rabenko discloses a map interval, where the request and maintenance portions form a contiguous interval **(figure 9)**.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Hebsgaard by incorporating the MAP design of Rabenko. The motivation for such a modification being to synchronize voice packet sampling with cable modem system grant processing when transmitting packet based voice using cable modems.

10. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hebsgaard et al. (US 2004/0218589), hereinafter referred to as Hebsgaard in view of Giacopelli et al. (US 2002/0101826), hereinafter referred to as Giacopelli.

Regarding claim 18, Hebsgaard discloses the limitations: generating a map interval defining channel transmissions for a period of time **(page 1 paragraph 006; MAP information covers time periods for a channel)**; flexibly partitioning the map interval into a request interval, a management interval, a data+signaling interval, and a voice interval **(page 1 paragraph 0006; MAP information consists of a request**

region, maintenance region and data region, it is obvious that the data region could transmit any type of media, e.g. audio, video, and/or data).

Hebsgaard fails to teach the limitation: further including assigning a higher priority to signaling packets than data packets within the data+signaling interval.

Giacopelli discloses in a network where bandwidth is shared, voice packets have priority over data packets and signaling packets have priority over voice packets **(page 1 paragraph 0007)**.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Hebsgaard by incorporating the method of bandwidth sharing taught by Giacopelli. The motivation for creating such a modification being, to increase the efficiency of network traffic control though the use of bandwidth management techniques.

11. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hebsgaard et al. (US 2004/0218589), hereinafter referred to as Hebsgaard in view of Lee et al. (US 6529520), hereinafter referred to as Lee.

Regarding claim 20, Hebsgaard discloses the limitations: generating a map interval defining channel transmissions for a period of time **(page 1 paragraph 006; MAP information covers time periods for a channel)**; flexibly partitioning the map interval into a request interval, a management interval, a data+signaling interval, and a voice interval **(page 1 paragraph 0006; MAP information consists of a request**

region, maintenance region and data region, it is obvious that the data region could transmit any type of media, e.g. audio, video, and/or data).

Hebsgaard fails to teach the limitation: further including generating a secondary request interval within the map interval if bandwidth his available.

Lee discloses adjusting a number of reservation requests by a factor of available shared bandwidth **(column 29 lines 18-22)**.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Hebsgaard by incorporating the method taught by Lee. The motivation for such a modification being a simple method for allocating bandwidth dynamically to adapt to the changing number of requests.

12. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hebsgaard et al. (US 2004/0218589), hereinafter referred to as Hebsgaard in view of Beser (US 6807193), hereinafter referred to as Beser in view Moore et al. (US 6807195), hereinafter referred to as Moore.

Regarding claim 27, Hebsgaard discloses the limitation: transmitting map intervals from a cable modem termination system on a downstream channel to a plurality of cable modems **(page 1 paragraph 0006; the MAP information is transmitted on a downstream channel by a CMTS)**, wherein the map intervals define upstream traffic for the plurality of cable modems for a period of time in the future **(page 1 paragraph 0006; the MAP information covers an upstream channel)**.

Hebsgaard fails to teach the limitation: flexibly partitioning the map intervals into a plurality of sub intervals based upon bandwidth requirements of the sub intervals.

Beser discloses generating a map indicating the use of channels and time slots for bandwidth allocation **(figure 5 and column 3 lines 48-50)**.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the method of allocating bandwidth taught by Beser into the Hebsgaard's map. The motivation for creating such a modification being, to provide an efficient method of transmitting data traffic between a modem and termination system.

Hebsgaard, Beser, or their combination fails to teach the limitation: and further placing UGs within the voice interval up to a predetermined maximum bandwidth.

Moore discloses that in accordance with the current DOCSIS standard, UGs are used to guarantee sufficient bandwidth to transmit voice **(column 3 lines 63-column 4 line 1; it would have been obvious to one having ordinary skill in the art that sufficient bandwidth to transmit voice could be a maximum bandwidth)**.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combination ob Hebsgaard and Beser by incorporating the current DOCSIS standard taught by Moore. The motivation for such a modification being an improved system of transmitting packet voice traffic that minimizes latency and jitter.

13. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hebsgaard et al. (US 2004/0218589), hereinafter referred to as Hebsgaard in view of Beser (US 6807193), hereinafter referred to as Beser in view Rabenko et al. (US 6,763,032), hereinafter referred to as Rabenko.

Hebsgaard discloses the limitation: transmitting map intervals from a cable modem termination system on a downstream channel to a plurality of cable modems **(page 1 paragraph 0006; the MAP information is transmitted on a downstream channel by a CMTS)**, wherein the map intervals define upstream traffic for the plurality of cable modems for a period of time in the future **(page 1 paragraph 0006; the MAP information covers an upstream channel)**.

Hebsgaard fails to teach the limitation: flexibly partitioning the map intervals into a plurality of sub intervals based upon bandwidth requirements of the sub intervals.

Beser discloses generating a map indicating the use of channels and time slots for bandwidth allocation **(figure 5 and column 3 lines 48-50)**.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the method of allocating bandwidth taught by Beser into the Hebsgaard's map. The motivation for creating such a modification being, to provide an efficient method of transmitting data traffic between a modem and termination system.

Hebsgaard, Beser, or their combination fails to teach the limitation: further including minimizing fragmentation of the data+signaling interval.

Rabenko discloses a map interval, where the request and maintenance portions form a contiguous interval **(figure 9)**.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combination of Hebsgaard and Beser by incorporating the MAP design of Rabenko. The motivation for such a modification being to synchronize voice packet sampling with cable modem system grant processing when transmitting packet based voice using cable modems.

14. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable Hebsgaard et al. (US 2004/0218589), hereinafter referred to as Hebsgaard in view of Beser (US 6807193), hereinafter referred to as Beser in view Giacopelli et al. (US 2002/0101826), hereinafter referred to as Giacopelli in view of Lee et al. (US 6529520), hereinafter referred to as Lee.

Regarding claim 31, Hebsgaard discloses the limitations: transmitting map intervals from a cable modem termination system on a downstream channel to a plurality of cable modems **(page 1 paragraph 0006; the MAP information is transmitted on a downstream channel by a CMTS)**, wherein the map intervals define upstream traffic for the plurality of cable modems for a period of time in the future **(page 1 paragraph 0006; the MAP information covers an upstream channel)**; and flexibly partitioning the map intervals into a plurality of sub intervals **(page 1 paragraph 0006; MAP information consists of a request region, maintenance region and data**

region, it is obvious that the data region could transmit any type of media, e.g. audio, video, and/or data).

Hebsgaard fails to teach the limitation: based upon bandwidth requirements of the sub intervals.

Beser discloses generating a map indicating the use of channels and time slots for bandwidth allocation **(figure 5 and column 3 lines 48-50)**.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the method of allocating bandwidth taught by Beser into the Hebsgaard's map. The motivation for creating such a modification being, to provide an efficient method of transmitting data traffic between a modem and termination system.

Hebsgaard, Beser, or their combination fails to teach the limitation: and further including assigning a higher priority to signaling packets than data packets.

Giacopelli discloses in a network where bandwidth is shared, voice packets have priority over data packets and signaling packets have priority over voice packets **(page 1 paragraph 0007)**.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combination of Hebsgaard and Beser by incorporating the method of bandwidth sharing taught by Giacopelli. The motivation for creating such a modification being, to increase the efficiency of network traffic control though the use of bandwidth management techniques.

Hebsgaard, Beser, Giacopelli, or their combination fails to teach the limitation: and further including forming a further request interval when bandwidth is available.

Lee discloses adjusting a number of reservation requests by a factor of available shared bandwidth **(column 29 lines 18-22)**.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Hebsgaard by incorporating the method taught by Lee. The motivation for such a modification being a simple method for allocating bandwidth dynamically to adapt to the changing number of requests.

Response to Arguments

15. Applicant's arguments with respect to claims 11-12, 17 and 28 have been considered but are moot in view of the new ground(s) of rejection.

16. Applicant's arguments filed have been fully considered but they are not persuasive.

On page 11, the Applicant respectfully traverses that the applied references relied upon in the Office Action, whether considered alone or in combination, establish a prima facie case of obviousness. The Examiner respectfully disagrees with the Applicant. Each of the applied references is within the field of the Applicants invention, thus there is a reason to modify or combine the references. Each of the applied references alone provide an expectation of success, thus there is a motivation to combine them together. Each of the applied references provide a motivation to

combine thus each of the claim limitations are taught. Therefore the basic three criteria are met and a prima facie case of obviousness is met

On page 12, the Applicant respectfully traverses that the references relied upon in the Office Action, as attempted to be modified and/or combined, do not expressly or inherently teach or suggest every limitation. The Examiner respectfully disagrees with the Applicant. Hebsgaard discloses MAP information consisting of a request region, maintenance region and data region, where the data region uses long and short grants. Data as interpreted in its broadest sense could be any type of media, such as audio, video, and/or text. Thus the long and short grants taught by Hebsgaard could be used for audio and video, audio and text, video and text, or any other combination of the different types of media. Thus the references relied upon in their modified or combined format discloses, teaches, and/or fairly suggest each of the claim limitations.

On pages 13-23, the Applicant respectfully traverses that the Office Action fails to provide any suggestion, motivation, or teaching in the prior art that would have led to the obviousness of making such combinations. The examiner respectfully disagrees with the Applicant. It would have been obvious to make such modifications because each of the applied references is within the field of the Applicants invention. Each of the applied references alone provide an expectation of success within that field, thus there is a motivation to combine them together.

Conclusion

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Feben M. Haile whose telephone number is (571) 272-3072. The examiner can normally be reached on 6:00am - 3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on (571) 272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

FMH 06/27/2006

RICKY Q. NGO
SUPERVISORY PATENT EXAMINER